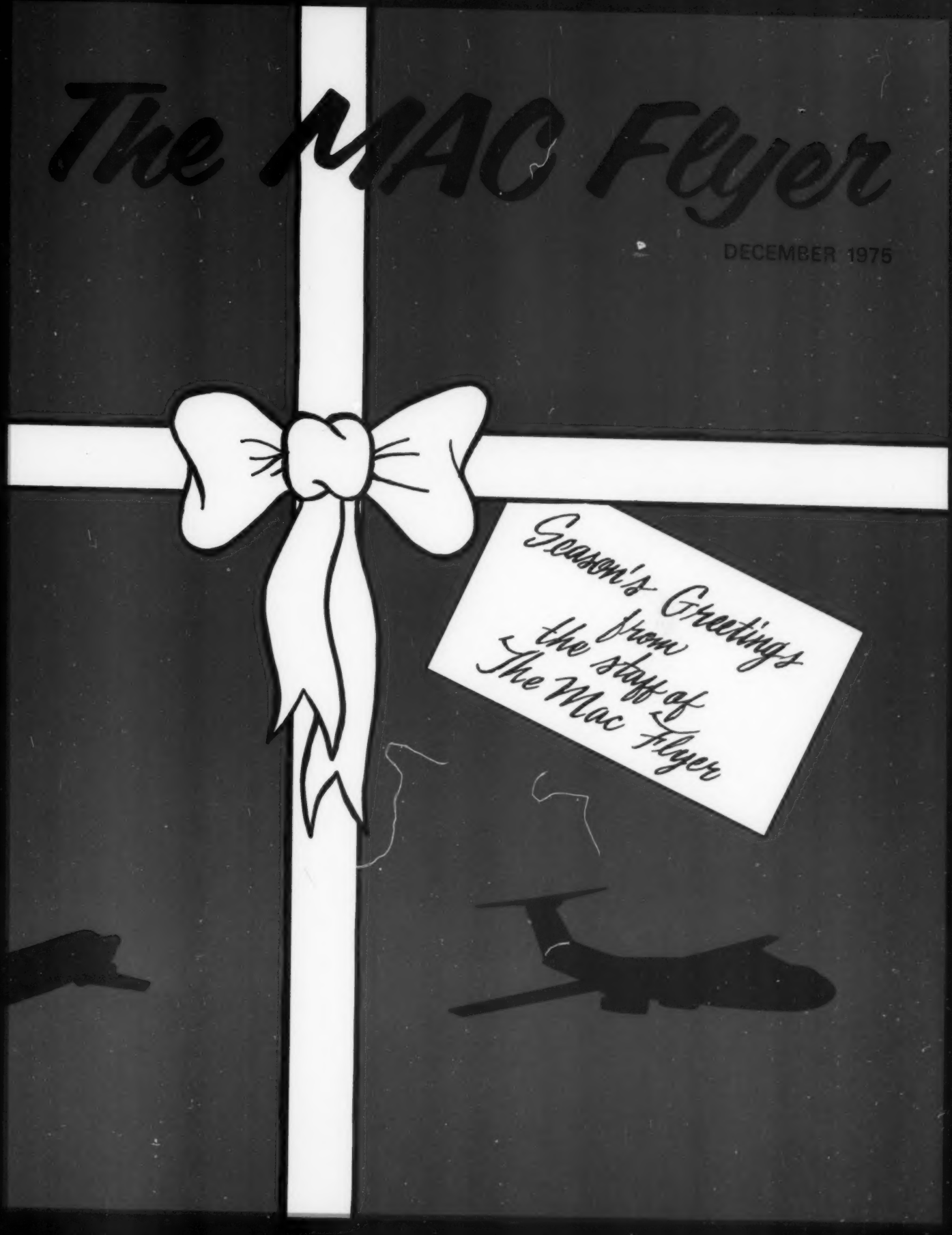
The MAC Flyer

DECEMBER 1975



MILITARY AIRLIFT COMMAND
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The MAC Flyer

For Greater Efficiency
in MAC Air Operations

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A Christmas Message

This has been a dynamic and challenging year for the Military Airlift Command. You, the men and women of MAC, have performed admirably, and I take this opportunity to express to you my appreciation.

The yuletide season is a time for reflection: thoughts of past Christmases, how far we've come, and what the future holds.

Airlift's contributions to Air Force history are legion: Berlin, Lebanon, Southeast Asia, Hanoi, Managua, Tel Aviv. There have been name changes too: Air Transport Command, Military Air Transport Service, Military Airlift Command. And accompanying conceptual changes such as tactical resupply, tactical airlift and airdrop capabilities, strategic airlift and airdrop concepts, weather reconnaissance, and rescue and air evac linked to provide immediate response in critical situations.

This has been another year of milestones. The USAF airlift forces are now together under one roof; USAF reorganization has brought aeromedical evacuation, weather and rescue units, T-39 Sabrelift, tactical airlift units, and strategic airlift together. With the advent of aerial refueling, the United States possesses a truly long range strategic capability, surely one of the most effective means for insuring peace.

It hasn't been easy, but you, the men and women of MAC, have made 1975 a productive year in spite of the obstacles. Fuel shortages and a shrinking dollar have certainly caused changes in thinking, administration, and decision-making that have affected all of us.

A look ahead will show this command growing, both in size and responsibility. And it will take very special people to meet the commitments of the largest and most versatile command in our country's history. Those "special" people are you MAC men and women. I know I can count on your talents, drive, and devotion to duty to perform as you have in the past.

Mrs. Carlton joins me in wishing for you and your families the Christmas gift of happiness and health for years to come and a peaceful and prosperous New Year.

Paul K Carlton

Honorable
1975 MAC Flying S

De

"Our policy towards alcohol abuse is simple and straight forward — help people help themselves. The emphasis is on identifying and assisting those with drinking habits that are creating problems for themselves and for the Air Force. To this end, we must take the initiative in providing them with early preventive assistance."

Gen David C. Jones
Air Force Chief of Staff

Aircrew members are not immune to alcoholism. The odds are strong that some are at this moment suffering from the disease. That an alcohol abuser will read these words is virtually a certainty. What follows is a powerful account of one man's tryst with the bottle. It is a perfect example of an aircrew member who needs help desperately.

The noise started a million miles away and then exploded in his brain. It took about 15 seconds of lying there to realize that he was he, that he was in bed, and the noise was his alarm clock. It was another Monday morning, another average morning, and he could just about move.

Bob turned over and his wife, as usual, was not there. "The old bitch," he thought. "Too damn good to sleep with me."

He had to go to work; but first he had to get up, and he felt like hell. "It must have been a good time, at least the parts I remember."

Fighting with his wife and throwing some junk around were the parts he didn't remember.

He got up and went straight to the bathroom. He needed to shave but he couldn't. Couldn't even light his cigarette. He needed something but the old bitch was sleeping in the den. But, in the third drawer, under the shirts, there was a half pint of vodka. Unable to pour it into a glass, he held it up to his lips. Some dribbled out, and he vomited up the first swallow. Thankfully, the second and third stayed down. He finished the half pint, waited, and damned if he didn't feel on top of the world after the shakes stopped. A quick shower, shave, and he was off and running.

Captain Robert Howzit got to the squadron and reached his desk ahead of everyone. He looked good, a little red in the eyes but what good flying jock isn't?

Bob and the colonel exchanged greetings. Bob was a little worried about the colonel's interest in him lately. The chief kept asking if he was feeling well and kept him at the desk rather than flying the line. Nevertheless, Bob put his mind down to the section's work. But by about ten o'clock, he started having the shakes. He always hated this. The anxieties start getting uncontrollable. Fear starts taking over. He had to get out.

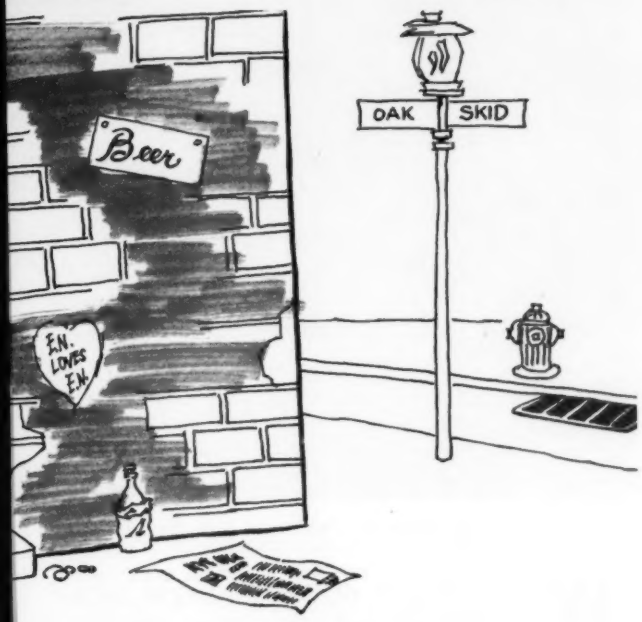
"Hey, Chief, I got to stop by Personnel just a bit. Give me about a half hour to 45 minutes. Nav section says they're looking after the phones."

Before the colonel could really answer, Bob had his hat on and was on his way. Too early to go to the club and he could not be seen around the local liquor stores. He drove out the gate and headed

Mention
fety Writing Contest

ial

by Capt Gregory J. Cello
436 APS
Dover AFB, Del.



for the less desirable part of town. He was counting the tenths on the speedometer. Another mile or so.

"Damn light will never turn."

He was ready to leave the car and run, but then, at last, the final block and a parking spot. He made it into the bar and the barkeep was busy down at the other end for an eternity. At last, a triple shot of vodka straight. The bartender knew what to do. He put that cheap stuff in a brandy sniffer so Bob could grab it by both hands and hold it to his mouth without losing one precious drop. He lifted it to his mouth, swallowed, gagged, and waited. Soon he was calm again. And once more the Distinguished Graduate kept the demons at bay.

He stepped over sleeping, smelly bodies to go next door for some insurance — a pint and two half pints. A quart was too hard to hide and three bottles could be spread out. He opened the car door and slid the pint underneath the back seat. One of the half pints he hid under the front seat; the other he put under the dash — after downing half of it.

Back at the office again, he knew he was good till lunch. And if necessary he had what he needed in the car.

Bob had lunch at the club with a couple of the other guys in the squadron and his two beers brought no notice and he felt good. Later at work, he excused himself for a second. It seems he'd left some notes in the glove compartment of his car. It was deliberately parked in the back of the parking lot. He got into the car and pretended to look in the glove compartment. Lying down sideways, he reached for the half pint, removed the cap, downed it into his mouth. Half dribbled over him.

"God, I'm going to stink like a brewery."

He ran quickly into the building, looking around. No one! Grabbing his briefcase — where he always carried a toothbrush kit and a cologne bottle — he ran into the men's room, stripped down, washed the stinking sweat off, brushed his teeth, and rubbed himself liberally with cologne.

"I think I'm going to make it."

Back at the desk, Bob quickly went through his in-basket, initialed a couple of APR's to be typed, verified some schedules, and grabbed an All Sections routing slip. It had a two-page Air Force blurb on alcoholism. He gave it a quick scan:

SYMPTOMS: MORNING DRINK, HIDING LIQUOR, DRINKS WITH INFERIORS, CONSTANT NEED.

He quickly initialed it; if he could have, he'd have put "B. S." on it.

"Wish they'd quit this junk. A little willpower is all that's needed for those drunks. If they can't hold their liquor like a man, throw them out."

After he had let everyone else get out of the building, Bob left. In the empty parking lot, Bob slipped into the car, ducked down, turned his head, and took three long pulls. Quickly he put the top back on, looked around, and drove off to the club. Before getting out of the car, he liberally doused himself with cologne and ran straight to the men's room, then into the bar to the table where his buddies were sitting. They shoved an empty glass to him and he poured a beer. He took a long swallow and let out a satisfied sigh, "First of the day."

Strategic airlift takes on a new dimension thanks to the reality of C-5 in-flight refueling.

THE C-5

by Maj Duane Tuttle
443 MAW
Altus AFB, Okla.

"Two miles and closing," the C-5 navigator announced. "Heading and airspeed look good."

"And I've got a visual," the pilot transmitted on UHF.

It was August 1974 and the first "lookup and hookup" of a MAC-crewed C-5 with a SAC KC-135 tanker. During a series of operations nicknamed "Cold Juice," MAC and SAC crews would perform a multitude of such rendezvous to "prove through demonstration the concept of strategic airlift aerial refueling operations and simultaneously provide valuable C-5 aerial refueling training of both MAC and SAC aircrews."

The operation made aeronautical history by ushering in a new concept which added greater dimension and flexibility to the nation's strategic airlift posture. MAC is now capable of delivering dramatically increased payloads to nearly any spot in the world, nonstop. Cold Juice I proved this by airlifting nearly 100,000 pounds of cargo from Dover AFB, Del., to Clark AB, Philippines. Via mid-Pacific routing, the historic nonstop flight covered approximately 10,000 miles in only 20.5 hours.

En route, SAC provided unerring support in the form of five KC-135's which delivered more than 44,000 gallons of petrol to the thirsty C-5. The first refueling took place off the coast of California and the second near Guam.

Within one week of the initial Cold Juice mission, selected crews began refueling training at Altus AFB, Okla. These MAC men became the cadre of aerial refueling-qualified airlifters. Their numbers have grown to over 70 such qualified crews; this equates to approximately one AR crew per C-5 airframe.

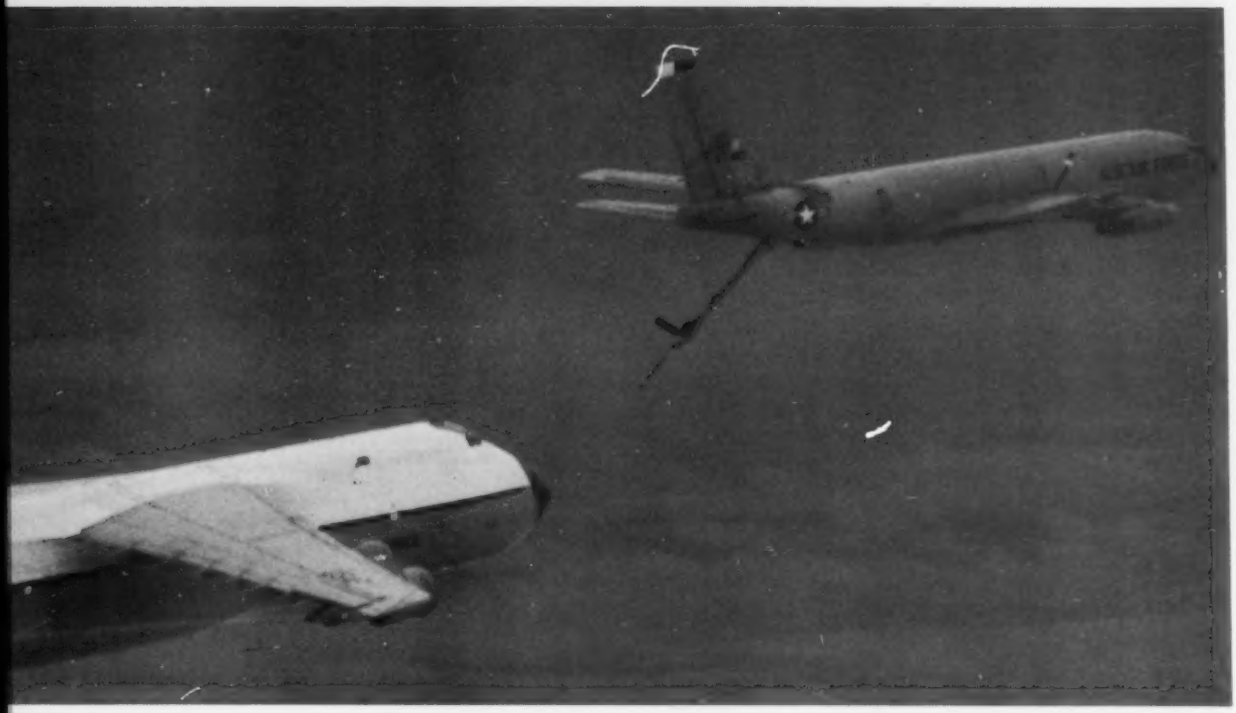
With the world situation as it is today, the AR capability has given MAC almost limitless mission options in delivering heavy and outsized military cargo without dependence upon sometimes hard-to-come-by land-based fuel stops.

Nuts and Bolts

Though the mating of the C-5 with the KC-135 is basically the same as AR operations with other heavy receivers, some changes in technique were required in gassing up the "World's Largest" at altitude.

For most MAC crews AR would be a new experience. They found that rendezvousing with the tanker is pretty much the navigator's show; and like his SAC counterpart, the C-5 Magellan uses

TAKES IT IN THE AIR



sophisticated electronic rendezvous equipment to effect the joinup. Once the C-5 navigator identifies the tanker on his scope, he positions the Galaxy a few miles to the right and 1,000 feet below the tanker's reciprocal track. At the proper range the navigator directs the tanker pilot to execute a 180-degree turn to the refueling heading. This positions the tanker approximately two miles ahead and 1,000 feet above the C-5. The navigator has the capability of closing the gap to within one mile of the tanker without actual visual contact. Final closure must be made visually by the pilot.

As the Galaxy closes to precontact position, the tanker-generated jet wash and wing vortex turbulence are minimal and have little effect on the huge bird. As a matter of fact, the monstrous "bow wave" generated by the broad-nosed C-5 is more of a problem and tends to upset the smaller KC-135. Because of this bow wave phenomenon, Galaxy pilots use an extremely slow rate of closure, enabling the tanker's autopilot trim to keep up with the changing airflow over its horizontal stabilizer.

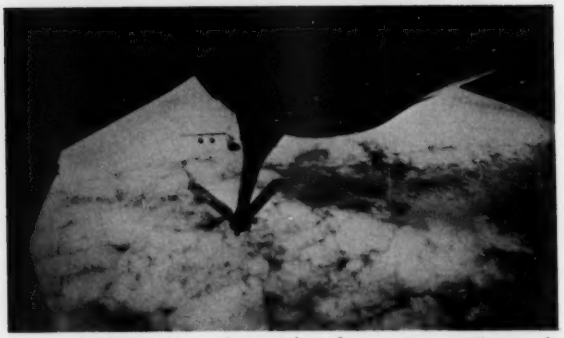
Once the tanker and receiver get within 20 feet of contact, things get a little complicated. The C-5 refueling receptacle is about eight and one-half feet behind the pilot's right shoulder. In the critical minutes prior to hookup, the C-5 driver must change his reference from the boom, as it passes over the cockpit, to the front underside of the KC-135. To aid the pilot in maintaining contact position, there are two rows of director lights just aft of the KC's nose gear doors. These signals direct the Galaxy pilot to correct fore or aft, up or down. His lateral cue is a painted stripe on the center of the tanker's fuselage.

Contact

Normal hookup and fuel transfer lasts about ten minutes while the Galaxy takes on petrol at a maximum rate of 6,900 pounds per minute. C-5 pilots report excellent control response and "windshield picture" of the tanker at low gross weights. But as the C-5 weight approaches 650,000 pounds, the beast gets a little sluggish, making it difficult to change direction on any axis. Consequently, MAC aerial refuelers have perfected the technique of "leading" control inputs and anticipating aircraft movement.

And for the erstwhile pilot entering a new aerial

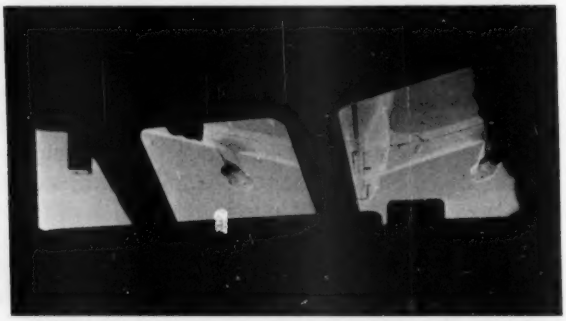
TAKES IT IN THE AIR



In contact position, the tanker becomes an "attitude indicator."

Final closure must be made visually by the pilot.

Extremely slow closure rates are essential . . .



so that the tanker can compensate for the Galaxy's monstrous "bow wave."

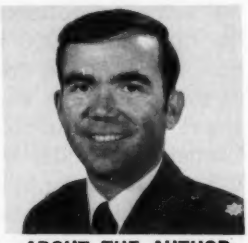
refueling environment, some honest introspection is essential. Most of us pilots feel confident about flying smooth and precise formations à la UPT, but bringing the jumbo so close to a heavy, and then actually maintaining the connection, takes some self-convincing.

Exercise in Concentration

If close formation flying is an exercise in concentration, aerial refueling is not for the pensive pilot with a short attention span. In contact position, the tanker becomes an "attitude indicator" and concentration on detecting the slightest relative movement is the secret. White knuckles shine and beads of perspiration appear on the forehead as the Galaxy pilot strains with his entire body to keep his thirsty steed in position. Relax — concentrate. If the tension builds to the point of frustration, it's a good idea to disconnect and back away to a safe position and let the right seater drive for awhile.

Play It Safe

Aerial refueling under ideal conditions (daylight, VMC) is quite a challenge for the tanker pilot, C-5 pilot, and boom operator. Add the variables such as ubiquitous clouds, turbulence, a blinding sun, or inky black night conditions, and you can recognize that AR demands the attention of all crew members on both aircraft. Safe completion of the mission depends on how well each crew member knows and performs his job.



ABOUT THE AUTHOR

Major Tuttle entered the Air Force in 1955 and completed pilot training in 1956. From 1956 to 1964, he flew B-47's with the Strategic Air Command where he gained air refueling experience with the KC-97 and KC-135 tankers.

Assigned to MATS in 1964, Major Tuttle has flown the C-124, and C-141 as well as the Galaxy. In 1970, he was assigned to Altus AFB, Okla. and became a C-5 instructor pilot in 1971. When the C-5 aerial refueling program began in 1973, he became the first air refueling instructor pilot in MAC. He commanded the first operational overwater refueling mission from Dover AFB, Del. to Clark AB, P.I. The author has played an active role in establishing training requirements and operating procedures for the C-5 aerial refueling program.

Captain Polizzo and Crew

MILITARY AIRLIFT COMMAND

GOOD SHOW

From left to right: TSgt John G. Finley, flight engineer; Maj Jerald M. Davis, navigator; Capt Edmund Rossnagel, pilot; Capt James R. Polizzo, aircraft commander; Capt Mario A. Cinquino, pilot; SMSgt David P. Moskowitz, SSgt John A. Blackley, and Sgt Robert N. Parrillo, loadmasters. Not pictured: Maj Frank D. Dugan, navigator, and TSgt Pervus A. Close, flight engineer.

Under the command of Captain James R. Polizzo, 702 MAS (Associate), McGuire AFB, N. J., the nearly grossed out Starlifter thundered off the runway at Torrejon and began its long westward leg out across the Atlantic to home base. Little did Captain Polizzo and his crew realize that their airmanship, experience, and knowledge was about to be tested in a crucible of multiple in-flight emergencies.

Approximately two minutes into the flight, the C-141 momentarily leveled 1,500 feet above the ground. Without warning, the turbine section in number three engine exploded, catapulting hot shrapnel into fuel tanks, fuselage flaps, and number four engine. The wildly gyrating engine also hurled part of its cowling into the leading edge of the right wing.

As Captain Polizzo shut down number three engine, the crew surveyed and reported aircraft damage. It was apparent that several emergencies demanded immediate attention. Aircraft controllability was uncertain, pressurization was lost, fuel gushed from ruptured fuel tanks, and fuel fumes rapidly accumulated in the cargo compartment. Number four engine appeared to be damaged but engine instruments indicated no signs of power loss.

Captain Polizzo established a priority of emergency responses and quickly coordinated and directed crew actions. To minimize the likelihood of fire, the flight engineer jettisoned fuel from the ruptured tank and adjusted fuel quantities in the remaining tanks to maintain aircraft balance. One air conditioning system was restored to operation, enabling the crew to vent fuel fumes from the main cabin. Following these actions, Captain Polizzo performed a series of controllability checks and subsequently landed without further incident.

Throughout the 30-minute flight, the crew exercised extreme caution to remain well away from populated areas and hazardous terrain while resolving the multiple emergencies. Due to the professionalism and crew coordination of the crew, a C-141 was saved without injury to any of the eight passengers or ten-man crew. Good Show, Captain Polizzo and crew.

Sabrelift

MAC's T-39 operation — airlift and training — is shifting into high gear from coast to coast.

Affectionately known as "Teeny Weeny Airlines" but tagged as "Sabrelift," the MAC T-39 fleet and those who fly and support it form an unusual training and airlift force.

In sheer numbers, there are enough of the twin engine jets in the command to form three wings. Geographically, their units are spread from Andrews AFB, Md., on the east coast to McClellan AFB, Calif., on the west. Administrative and training functions are under the control of the 89th Military Airlift Wing at Andrews while operational control and coordination of airlift is the responsibility of the Administrative Airlift Division at Scott AFB, Ill.

Day in and day out, MAC Sabreliners dot the skies across the country, airlifting passengers and training crews who will ultimately pilot MAC's smallest airlifter. While the Sabreliner has been around for quite awhile in MAC, only since the command was named the single manager of all stateside T-39's in late 1974 has this large fleet of small aircraft begun to jell into a full-fledged, single manager operation.

The Beginning

As air staffers eyed the rapidly accelerating cost of maintaining a large, aging fleet of reciprocating aircraft, they surmised that the current period of economic retrenchment and skyrocketing fuel costs further aggravated the situation. Result: The Chief of Staff, USAF, ordered the retirement of recip support aircraft by the end of fiscal year 1975.

But how could the Air Force provide wartime readiness training for its staff pilots and airlift support capability for its many users? As 1974 drew to a close, this problem was resolved as MAC became the single manager and central scheduler of 105 T-39 aircraft and assumed responsibility for developing and implementing an operation which would provide wartime readiness training for staff pilots and airlift support to users.

MAC got the ball rolling in early 1974 when it launched its centralized scheduling function and formed three T-39 squadrons heading up 12 T-39 detachments located around the country.

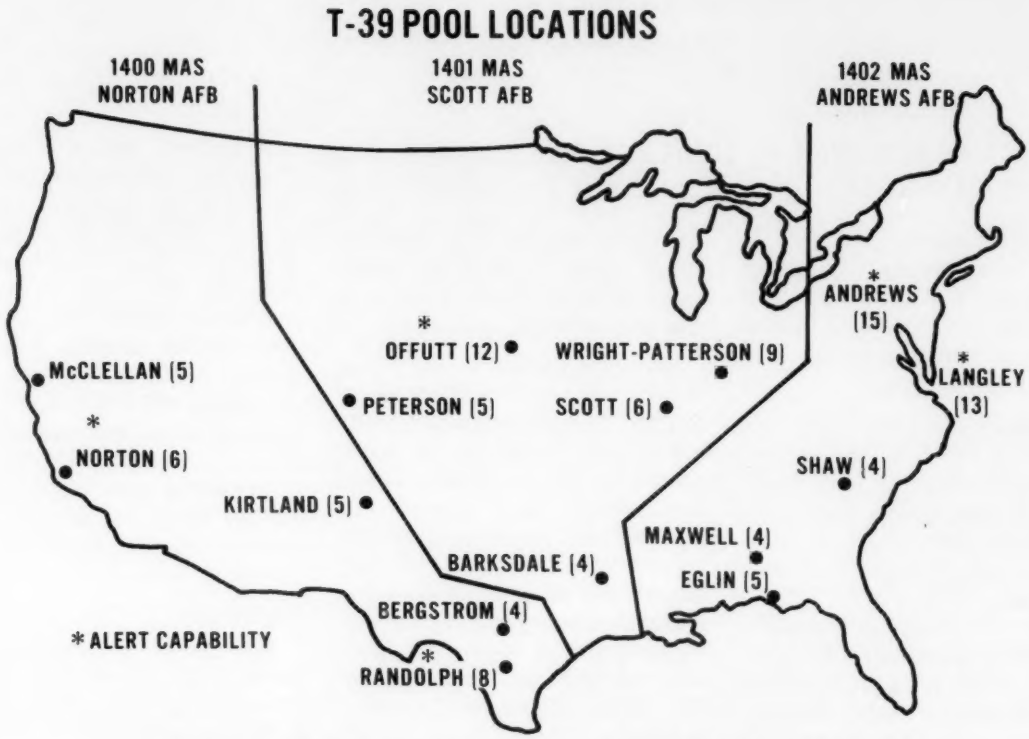
With 400 recips being sent to the boneyard or turned over to Reserve and Guard units, approximately 80 percent of the Air Force's training support aircraft and better than 90 percent of the administrative airlift passenger seats were lost. The job of the newly created "Sabrelift" function was to satisfy the primary training mission and to allocate limited airlift support to DOD agencies; all this with a fleet of only 105 Sabreliners with an average of 5.5 pax seats. In managing this limited resource, MAC staff planners had to develop airlift priority criteria and procedures, considering such variables as mission urgency, nature of the mission, and authority involved. Anticipating avalanches of airlift requests, "Sabrelift" managers got together with user commands and agencies and assigned specific individuals within these agencies who would validate airlift requests, assign appropriate priority values, and finally funnel user requests to central scheduling at Scott. Currently 77 "validators," representing agencies throughout the Air Force, act as initial processors between requesters and "Sabrelift."

Paying Off

The first of the newly consolidated T-39 detachments began operating centrally scheduled and controlled airlift support missions from Scott and Norton Air Force Bases during April 1975. Throughout the next three months, MAC gradually integrated the rest of the Sabreliner detachments into its centralized airlift support operation. By late summer, refinements in management, control, and scheduling enabled "Sabrelift" to support nearly half of the airlift requests submitted. Seat-per-sortie utilization steadily improved from 3.30 in July to 3.62 in August. In the future, two key factors will increase airlift request support and seat utilization even more: gradual reduction of the crew training requirement from 30 to 15 percent of the hours flown and a monthly increase in aircraft utilization from 87 to 100 hours per aircraft.

Focal Point

The nerve center of the "Sabrelift" operation is its central sched-



Asterisks indicate bases with aircrews on standby to provide timely response for high-priority missions. Parenthetical numbers represent T-39 airframes assigned to each location.

uling function at Scott AFB where personnel process more than 7,000 airlift requests per month.

Allocating a Sabreliner seat to everyone who requests one is impossible, but as of this writing nearly half of the requests are being filled.

And "Sabrelift" personnel don't stop there; monitors track each Sabreliner airlift mission. Flight-following data are obtained from destination-base operations dispatches and from the crews. Pilots accustomed to arrival and departure messages can forget them in the T-39 airlift game. With many legs less than an hour long, message traffic is not quick enough.

As the T-39 consolidation approached its current posture, MAC anticipated a need for 16 attached pilots per aircraft and quickly set out to relocate and train sufficient staff and UDL pilots to handle the mission. Former recip pilots assigned to T-39 units, combined with the summer tide of transfers during 1975, placed a heavy training burden on the detachments. But as the summer heat diminished, so did the percentage of unqualified pilots; down from 35 percent, this rate is expected to stabilize around 10 percent by the end of the year. And that's good news for staff officers maintaining pilot proficiency and for a good many people looking for an official ride to Boondock AFB. Although proficiency training is the primary mission of the T-39 operation, the support airlift capability will increase directly as the crew training requirement tapers off.

Standardization, Training, and Safety

Prior to the T-39 consolidation under MAC, approximately three-fourths of the aircraft and crews belonged to other commands and a few special agencies throughout the Air Force. Training, standardization, and many operational procedures varied from command to command. How do you get a "hodgepodge" of T-39 units to operate on the same wave length? MAC assigned all the aircraft, UDL personnel, and responsibility for administration, standardiza-

tion, training, and safety functions to one organization — the prestigious 89th MAW at Andrews AFB. T-39 qualified instructors and flight examiners are now occupying authorized standardization, training, and safety slots from MAC headquarters on down to squadron level.

As the standardization function took root, T-39 crews throughout MAC began to operate under one set of rules. Takeoff minimums, fuel requirements, approach and landing minimums, crew rest and crew duty limitations, and prohibited maneuvers are just a few of the areas standardized by the 89th and MAC. Refined T-39 standardized procedures now appear in the MAC supplement to AFM 51-39 and will be integrated into the new MACR 55-1.

On the training side of the house, MAC planners are looking forward to a centralized training facility in the not too distant future. A number of bases are being evaluated for the establishment of a mini-jet TTU. At the planned training course, pilots will receive a 15-academic day course of academics, simulator, and initial flight training in the Sabreliner. This program will eventually provide qualified pilots directly to detachments. For the attached staff pilots, the hassle of breaking away from the office for time-consuming, protracted, and sometimes haphazard checkout will be a thing of the past.

A beneficial spinoff of command-wide standardization and centralized initial training is, of course, a stronger flying safety base. A well-trained, standardized pilot is a safer pilot. But maintaining high flying standards and an unblemished accident record is going to be a tough challenge in view of the "part time" flying schedules of staff officers supporting "Sabrelift" missions.

Tight money means doing more with less and that's what MAC is accomplishing with its "Teeny Weeny Airline" operation. Despite budget limitations and greatly reduced airlift resources, staff pilots occupying flying slots throughout the CONUS are receiving better proficiency training and "Sabrelift" is satisfying more of its customers with prompt, courteous airlift support. If you hear a "Chafe," "Pacer," or "Often" call sign over Uniform or Victor frequencies, it's one of MAC's mini-airlifters responding to one of its missions — You Call, We Haul.

Global Notes

all for one

Two crews, working together during a serious in-flight emergency, displayed the airmanship and professionalism that earned for each member the MAC Distinguished Individual Safety Award.

Capt Gary E. Lorenz and his crew, 1551 FTS, Hill AFB, Utah, departed on an instructor upgrade cross-country navigation mission. Their destination was Robins AFB, Ga., where they would offload Capt James A. Hassell and his crew who were scheduled to pick up an aircraft. After approximately one hour of flight at flight level 250 the number one engine of the HC-130 flamed out and decoupled. The engine was shut down and feathered normally. Because of a failure in the gearbox and prop brake, the prop developed a slow, continuous backward rotation. Simultaneously with the engine flameout, the utility hydraulic suction boost pump warning light illuminated. The utility pump was turned off and the reservoir was checked by Sergeant Bradley. It was empty. Captain Lorenz turned off the number two engine-driven utility hydraulic pump. With pressure off the system, Sergeant Bradley replenished the reservoir. The number two pump switch was turned back on, but the pump would not pressurize the system. At this time, Captain Hassell replaced Captain Freiley as copilot. Conference Skyhook was initiated and descent was begun into Peterson Field, Colo.

Captain Hassell then advised ATC of the situation while Major Fiegel, the navigator, monitored terrain clearance and obtained airdrome information. Sergeant Dees maintained continuous communication via Conference Skyhook with HC-130 experts on the ground. Sergeant Long set up the fuel panel and dumped fuel to lighten the aircraft. The two additional pilots computed landing data and insured that their gross weight would insure a safe no-flap landing. Recognizing the possibility that a go-around might be necessary, the aircraft commander decided not to manually lower the flaps. Sergeants Long and Wilson were standing by to manually lower the right gear while Sergeants Bradley and Leveille were at the left gear. As the checklist was initiated, the gear was manually lowered. A straight in, no flap, three-engine approach and landing was made with directional control maintained by throttles and differential braking. Upon clearing the runway, the aircraft was shut down and evacuated due to the possibility of fire from the number two hydraulic pump or hot brakes.

Front row, left to right: SSgt Donald F. Leveille, flight engineer; Capt James A. Hassell and Capt Gary E. Lorenz, instructor pilots; MSgt Lance Wilson, loadmaster. Back row, left to right: Capt Kenneth J. Freiley, pilot; MSgt Buddy E. Dees, radio operator; Capt David K. Allen, instructor pilot; MSgt Curtis W. Long, flight engineer. Not pictured: Maj David A. Fiegel, instructor navigator, and TSgt William H. Bradley, loadmaster. All are members of the 1551 FTS at Hill except Captains Hassell and Allen, who are assigned to the 1550 ATTW.

and one for all

Capt John B. Gannon and his crew, 8 MAS, McChord AFB, Wash., provided some out of the ordinary assistance in response to a communications emergency.

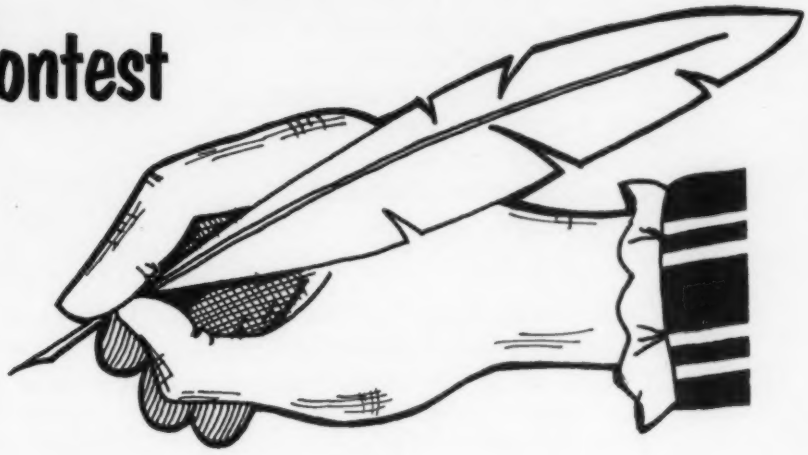
An unusual situation occurred when the Seattle Air Route Traffic Control Center suffered an almost complete loss of landline and radio communications. Because of the outstanding cooperation of Captain Gannon and his crew, the traffic using McChord Radar Approach Control services was handled without any noticeable delay.

Captain Gannon and his crew relayed 20 departure flight plans from Gray Field, Tacoma Industrial, Olympia, and McChord airports, provided information on 10 overflights, and in a very unusual course of action, participated in more than 30 radar handoffs between the approach control and the control center.

In a letter of appreciation, the Department of Transportation extended its thanks to the C-141 crew for the outstanding service they had rendered to numerous pilots and to the air traffic control system.

Looking for some way to express your views on operations and safety? Here's your chance.

The 1976 MAC Flying Safety Writing Contest



We missed your story in last year's contest. You remember, the one you began to pencil out on scratch paper about the incident that nearly caught you and your crew between a rock and a hard spot. A year and a contest have since gone by, but you have a new opportunity — to pen your story for MAC's 1976 Flying Safety Writing Contest. Flying safety stories never grow old. Last year's first place winner authored, in fictional format, a story that told of circumstances leading up to a fatal C-124 crash in an arctic fjord in 1965. The safety message in his story is as valid in today's arena of turbofans, flight levels, and inertial navigation as it was back in the low 'n slow era.

Your entry, whether fiction, nonfiction, technical, philosophical, poetry, or editorial, may win MAC-wide recognition and merit your photograph and by-line feature in a future issue of THE MAC FLYER. But more important, your story may be just the forum that'll prevent other airlifters from ending up in some nameless fjord or unforgiving mountainside.

Who can enter? Just about anyone, although only military personnel and DAF civilians assigned to MAC or MAC Reserve Forces are eligible for awards, which include desk sets for the top three winners and walnut plaques for honorable mention winners.

Guidelines

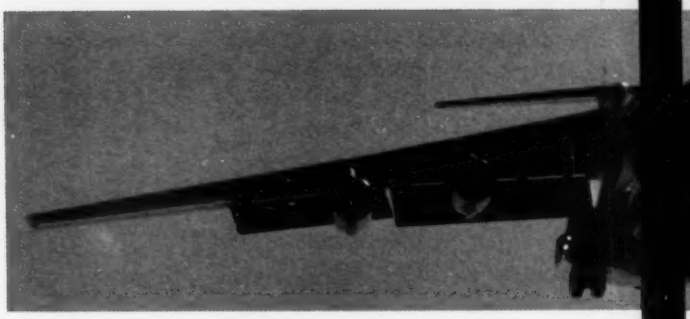
Entries must be original and unpublished. Attempt to keep entries to between 1,000 and 3,000 words. That's about six to 14 double space typewritten pages. Each entry should be typed in two copies with no identification except the title.

Before mailing, attach a cover sheet listing the title, name, organization, and a brief biographical sketch of yourself and mail to:

MAC Flying Safety Writing Contest
MAC/IGFE
Scott AFB IL 62225

Entries must be postmarked no later than 31 March 1976 and must be received at THE MAC FLYER on or before 7 April 1976. Don't wait till it's too late. Start your story now!

The Flight Be



'Twas the night before Christmas,
And out on the line,
The birds were all airborne,
Some shouldn't have been flyin'.
But the mission's important,
Priority one —
To get home for Christmas,
For frolic and fun.

Through the static of airways,
There came a commotion.
I could tell by the phone patch,
'Twas a Twenty-First notion.
What dastardly, devious,
Diabolical deed,
Had ops center come up with
To cut down our speed?

"Divert to your alternate,"
A voice loud and clear.
"Say again," I responded,
"You're unreadable, dear."
"Divert into Dover;
You'll spend the night there."
But tomorrow was Christmas;
It just wasn't fair.

To my copilot I turned,
"What did he say?"
"I really don't know, Sir;
He just faded away."
"Unable to copy,"
I said with a smile,
And turned off the HF
And counted each mile.

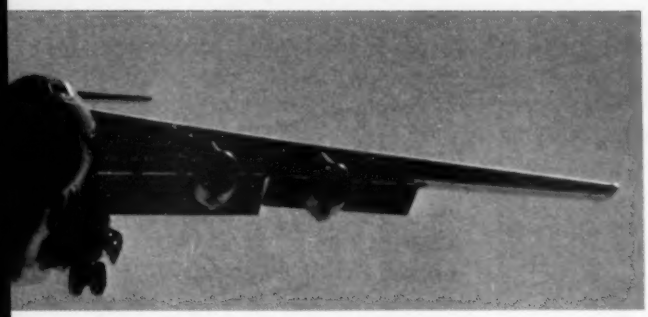
I looked over my shoulder
At the old engineer.
A wink of his eye meant
I had nothing to fear.
I thought to myself,
Could I shave off an hour?
I reached for the throttles
And pushed up the power.

We skimmed the cloud tops
At near .80 Mach.
Would we make it on time?
I looked at the clock.
I leaned back in my seat,
Rest my eyes for a bit;
We'd make it with ease.
Then, suddenly, it hit!!

The "T" handle twinkled,
The horn sounded merrily,
It glowed like a rose
As I faced it squarely.
I yanked out the handle
And hit the fire bottle,
Called for the checklist
And retarded the throttle.

fore Christmas

by Maj Orlen L. Brownfield
Associate Editor



Thoughts in my keen,
Analytical mind,
Told me at once,
This would put us behind.
I looked at my copilot,
A tear in his eye,
"Can we make the home drome?"
"We'll give it a try!"

"What d'ya think, Gator?
You've got all the facts,
Can we make the low country,
Cruising at max?"
Spinning his computer
And squinting his eyes,
The answer he gave
Was to me a surprise.

"Can we make it to home?
I think maybe, yes —
We'll just beat ol' Santa,
Is my estimated guess."
Just one hour later,
Gear down and locked,
On final for one-five,
The field was quite "socked."

Then, the runway I saw
At one hundred feet.
RCR: one,
And covered with sleet.
Then the SOF called,
"MAC, take her around!"
"You're too late," I said,
"Cuz we're now on the ground."

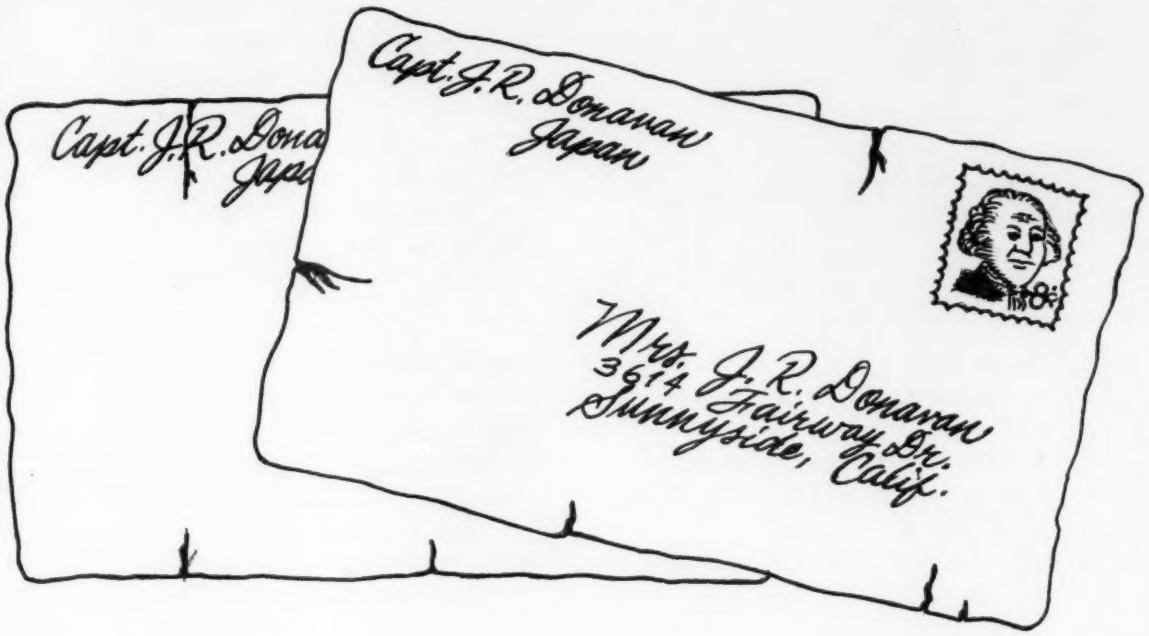
Reverse, brakes, and spoilers,
We made the last turn.
Good landing, I thought —
But reasonably firm.
Well, we made it on time.
What could be better?
"Merry Christmas," said tower;
"Now call the ops center."

"It's a good thing you guys
Just busted on through.
You've got to replace
A DNIF aircrew.
Post mission's been waived."
The ops center said.
"You'll fly back to Dover,
Sorry — deadhead."

We transferred our bags
To a one forty-one.
In spite of our efforts,
We'd miss all the fun.
Then the SOF said to me,
"It serves you just right!
Merry Christmas, you all,
And — have a good flight."

Donavan's Letters

Perplexed by a "gray area" aircraft discrepancy, an aircraft commander wonders if he made the right decision. A couple of yellowed letters hold the answer.



The lieutenant turned to the flight examiner seated in jumpseat, "Well, what do you think, Sir?"

"I think I'll let you handle this one — you're the AC," the major replied.

No one spoke as the young pilot pondered his decision. The maintenance type stood between the flight engineer and navigator's seats, waiting for the word.

And then slowly the AC said, almost to himself, "No . . . no . . . there's just too much against us." He turned and eyed his crew, one by one, "I think we'll turn this one in and try again tomorrow."

The engineer mumbled something and the navigator noisily wadded up his flight plan.

"Cope, call us a crew bus," the AC declared in his best command voice.

"Okay, Skip," the copilot sighed.

The baggage drill was a quiet one and the usual hustle was definitely absent.

At the operations center the controller greeted the crew with a facade of apathy; necessary paperwork was completed and the crew was officially in crew rest.

The AC and flight examiner followed as the rest of the crew headed for the crew bus.

"Well, Major, what are your plans?"

"I think I'll catch the next one out. I might see you again at Kadena."

"Yessir."

The two stopped momentarily. "Sir, do you think I made the right decision? I mean, what would you have done — given the same situation? The troops are pretty mad — Christmas and all. We might have been able to . . ."

"Bill, if you've got a minute, let me show you something." The major leaned down and pulled a black notebook from his lower pocket.

"I wrote these two letters nearly ten years ago — didn't mail them. Every now and then, I reread them. They remind me what it's all about. It's not the gospel according to Donavan and maybe doesn't even apply to your situation — well — just read them." And Major Donavan handed two tattered envelopes to a now curious pilot.

Bill carefully unfolded the letters and began to read:

21 Dec 1964
Japan

Dear Honey,

By the time you get this, Christmas will have come and gone, and I still won't be home.

I know — I told you we'd make it around in eight days and I'd be home in time for the holiday parties. But it doesn't look that way now. I've no one but myself to blame.

I'm in the BOQ now — by myself. I think I've succeeded in getting the whole world mad at me, and maybe you'll be angry too.

We got alerted about six hours ago and it looked like a good deal. My crew was really excited. We'd gotten all our Christmas shopping done and Bill (you remember the blond-headed navigator we met at the squadron party last month) and I went up to command post to file. The rest of the crew took our junk out to the Herk and loaded it.

Bill grabbed the flight plan and headed for weather. As I passed the command post window, the controller called out, "Hey, have you got 21394?" I nodded. "Well, you've got a maintenance problem," he says. "I'll talk to you when you're ready to brief."

No biggy, I thought. Nothing will keep us in this oriental paradise one more day. Well, Bill and I filed and returned to talk with the controller . That's when I started having doubts about getting off.

"You've a starter problem," he said. "But no sweat, they've approved a windmill taxi start. You got no cargo, so when you get number three on speed, taxi back and pick up the pax."

Well, I had done one windmill start before — a high speed taxi down the runway until you get enough airspeed to turn the bum engine. But that time I had a much longer runway. I mentioned this to the controller and told him I thought the runway here might be too short.

"We do it everyday," he said, "and we wouldn't let you do it if it wasn't safe." I guessed he was right and Bill and I went out to the bird.

Then the engineer tells me we've got a brake writeup, but that it's "no big thing." It made me nervous just the same, so all three of us, the copilot, engineer, and I, got into the charts to figure out how much runway we would need.

"I figure we've got a hundred feet to spare," Sergeant Wilms told me. Mike said he figured we had "just enough" runway to make it.

Well, maybe I was being a little too precise in my figuring and when I said we shouldn't try it, everybody got into the act. "What's the matter, Captain, didn't you get all you Christmas shopping done?"

"Naw, he just wants another rubdown at the Paradise."

"Hey, Skipper, my folks are coming down for Christmas. Let's go."

Someone, I don't know who, made a remark questioning my ability as a pilot.

What the hell, didn't they think I wanted to make it home for Christmas too? Finally I told them that we were not going anywhere in this machine. Then I called the command post and told them the same thing. Did they have another aircraft for us? We'd be glad to take a crew duty extension to get out of here. After a long pause, the duty controller came back with, "You'd better bring your crew in. We'll put you back into crew rest if you can't fly that one."

Even the maintenance types gave me the needle as we performed another baggage drill. "What's the matter with your AC?" a maintenance troop asked my engineer. I won't repeat his answer.

And the atmosphere at the command post was pretty frigid when they checked us in. "You might get a crew delay out of this, Captain." I couldn't figure that one out. Then he said, "You'll have to go back to the bottom of the stage." My troops really groaned at the remark.

Then, to top it off, as we left base ops, I ran into Earl Merkle (he used to be a flight examiner in our squadron; now he's a L/C maintenance type here) and he let me know he thought I was a chicken. "A real pilot would have . . . " I think he said.

I couldn't wait to get to the club. I figured a couple of martinis would lessen my anger and frustration. Well, my navigator and copilot said they'd rather drink with someone else. So I left.

Donavan's Letters

That's why I am here writing you, Honey. I really think I did the right thing, turning the aircraft down, regardless of what the others say. Sometimes it isn't easy being an AC. I'd like to get drunk, but I don't think I could.

I hope you're not angry — that would make it unanimous. Anyhow, we should make it home on the 26th or 27th. Tell the kids that daddy loves them and Merry Christmas.

Love you,
Jim

22 Dec 1964
Japan

Dear Honey,

I'm sure you heard about Bob Walton's accident by now. I don't imagine we'll make it back for the memorial services, but you go, please.

You know his copilot, Sandy Sanders, was really lucky getting out with just a broken leg. They don't know if the loadmaster will live.

Everybody around here is really quiet about it. Nobody wants to talk.

And rumors are flying. From what I gather, the command post called Bob last night right after they put us in crew rest, and asked him if he would take 21394. I heard they told him that I had turned it down and suffered from "fear of flying."

They're not supposed to do that — alert another crew on a "turned down" aircraft. But maintenance had told the controller that the brake writeup was insignificant. I imagine that his reluctance to be tagged as another foot dragger and the "get home for Christmas" attitude had a great deal to do with Bob's decision to give it "one more for the Gipper."

As best I can gather, Bob tried the windmill taxi start and failed to get number three on speed. He reversed one and four and got on the brakes — well, something happened, and when he decided to reverse number two for extra stopping power, the aircraft veered left and finally hit a gasoline truck waiting at the runway traffic light. If the fire trucks hadn't been standing by it would have been much worse.

Enough of the gory details. Last night, just after I mailed that letter to you, Bill and Mike came and told me about the accident. They had heard about it at the club. So we sat down and had a couple of beers and hoped everything was okay. Then one of the crews that had just checked in told us that most of the guys were killed.

Before Bill and Mike left the room, Bill put his hand on my shoulder and said, "Thanks, Jim." And Mike said, "Yeah, thanks, Skipper. At least we can celebrate Christmas a little late."

I hope you'll call Bob Walton's wife and the wives of the rest of the crew to see if you can help out anyway . . . Christmas and all. And please don't discuss what I've said. Everybody feels bad enough as it is.

I *will* be seeing you.

Love you,
Jim

Bill folded the letters carefully and handed them back to the major. "That's some pretty heavy stuff. Why didn't you mail them?"

"I did, the first one anyhow. But when I went to mail the second one, the first one mysteriously appeared in my box at the BOQ. And after what had happened, I thought it better not to advertise it," Donavan reminisced.

"I don't know, Sir. Those are good words for a young AC, believe me," Bill said, and then with candor, "Do you think that being an aircraft commander — well, will it ever change?"

"Nope," declared the sage, " . . . never."

More flashing lights and audio warnings? Yep, and the Ground Proximity Warning System could prevent you from going to pieces.

A Down to Earth Approach— The GPWS

If you're a MAC fixed-wing aircrew member, there is a possibility that your aircraft will be equipped with a new feature called the GPWS (Ground Proximity Warning System) sometime in the future.

Headquarters USAF has already approved the system for some aircraft assigned to the 89th MAW, Andrews AFB, Wash., and modification began on five of the unit's VC-137's last month.

As of this writing, there has been no USAF decision on which other MAC aircraft will be equipped with the system, but MAC has requested the GPWS for all of its fixed-wing aircraft. Top priority, after the 89th aircraft, has been given to the C-9, C-141 and C-5 fleet. So if you're a Nightingale, Starlifter or Galaxy driver, just stand by one.

Domestic airlines have already equipped most of their aircraft with the system — the result of a Federal Aviation Administration ruling requiring them to install the device by 1 December 1975. Military aircraft are not subject to the ruling.

The FAA's decision to require the GPWS followed a series of airline accidents in which aircraft were inadvertently flown into the terrain. The National Transportation Safety Board has estimated that from 1968 through April 1974, some 31 airline crashes and 841 fatalities might have been averted had the aircraft involved been equipped with the GPWS.

MAC began looking into the feasibility of providing some form of terrain warning system for its aircraft in July, 1974. A C-141 crash at La Paz, Bolivia, gave impetus to the effort.

The heart of the Ground Proximity Warning System is an aircraft computer which, coupled with sensors, sets off an alarm when the plane closes in on terrain at an excessive rate, the system utilizes some of the equipment already installed on many aircraft — the radio altimeter, central air data computer (CADC), gear and flap indicators, and glide slope indicator. It operates only below 2,500 feet AGL. For aircraft not equipped with a CADC, the proposed modification will incorporate a barometer rate sensor. Aircraft without a radio altimeter (the T-39 and C-7) must be equipped with one as part of the modification.

The accompanying article will give you an idea of just how this new system will operate on your aircraft and some of the limitations that aircrews must consider while using it.

It's a Real Attention Getter

by Capt Bernd McConnell
MAC/DPQ
Scott AFB, Ill.

MAC pilots who fly aircraft equipped with the GPWS will have extreme difficulty ignoring the cacophony of warnings that are triggered when their aircraft is in danger of hitting the ground.

If you can feature a loud, beeper-like "whoop, whoop," a voice ordering "pull up" and flashing "pull up" placards lighting up the cockpit, then you have a pretty good idea of what to expect as the system reacts to keep you from buying the proverbial farm.

At first glance, the system may seem like a complicated device that guarantees infallibility. But far from it. It is relatively simple and, as with many of our aircraft

A Real Attention Getter

systems, has definite limitations.

The GPWS utilizes a basic computer which takes inputs from the radio altimeter, CADC (central air data computer), gear and flap position indicators, and glide slope indicator to provide five warning modes.

The first warning mode, "Excessive Rates of Descent," provides warnings based on radio height and barometric sink rate. To do this, the computer compares the aircraft's rate of descent with its absolute altitude. If the aircraft is exceeding what the computer has been programmed to recognize as safe, the cockpit will be bombarded with the audio and visual warnings.

Mode two, the "Excessive Closure Rate to Terrain" feature, provides what has been described as a "pseudo" forward look. But there's a kicker. The GPWS does not look forward. It looks down and predicts ahead. Here's how. As you fly along below 2,500 feet AGL, your radio altimeter takes a series of absolute altitudes. The computer uses these altitudes to determine the terrain slope under the aircraft. By using the terrain slope, the system extrapolates forward to predict terrain slopes ahead. The computer then takes barometric rate-of-change information from the air data computer (CADC) or rate sensor and establishes the vertical flight path of the aircraft (how rapidly you're climbing or descending in relation to the terrain). If your aircraft's flight path intercepts this extrapolated terrain slope, a warning is sounded.

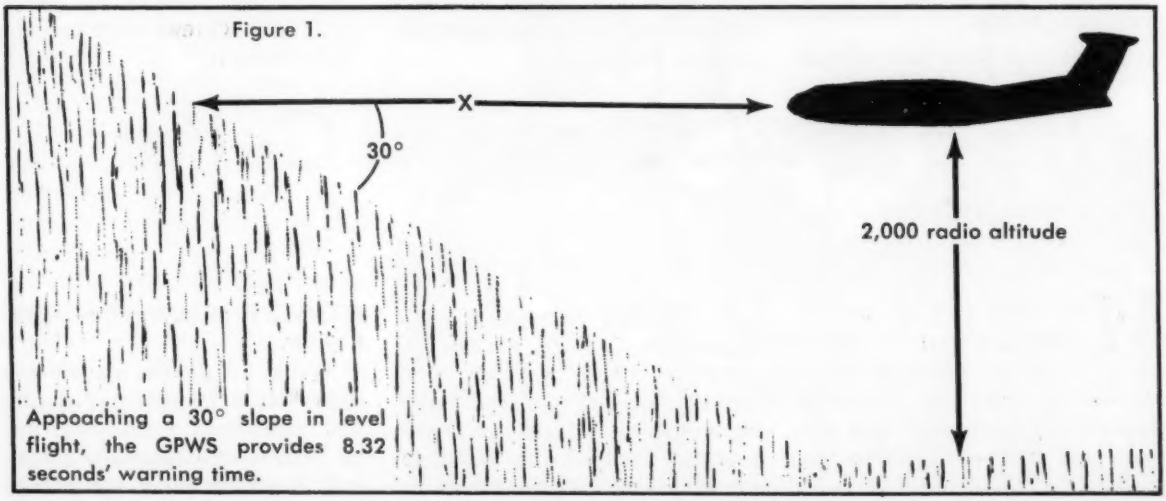
The "Excessive Closure Rate to Terrain" mode is an important feature of the system, but don't get the idea that it is foolproof. It isn't.

For example, Figure 1 shows a "clean" aircraft, in level flight, approaching a 30-degree slope. Mode two begins predicting ahead just under a 2,000-foot AGL radio altimeter height. Trigonometric calculations in the system, using the 2,000-foot altitude and 30-degree tangent, provide a warning when the aircraft is 3,464 feet from projected impact point (shown at point X on the illustration). Based on a groundspeed of 250 knots, or just over four nautical miles per minute (24,000 feet per minute, or 416 feet per second), the pilot receives a warning 8.32 seconds prior to projected impact. Fine. He pulls up and avoids impact.

But what would happen, under the same circumstances, if the aircraft were approaching a 60-degree slope? As you can see in Figure 2, Distance X, at which the warning system is triggered, now becomes 1,154 feet. Divide this by 416 feet per second and you come up with the fact that once the warning is sounded, the pilot has 2.77 seconds to react — about enough time to tense up for the inevitable impact. Under the same circumstances, an aircraft flying at 180 knots would have a warning of only 3.84 seconds prior to impact.

From a practical standpoint, there are not a great many areas of the world in which an aircraft descending for an approach would have to deal with a sudden 60-degree terrain slope. But they do exist at places such as La Paz, Bolivia, and the Olympic Moun-

Figure 1.



Appoaching a 30° slope in level flight, the GPWS provides 8.32 seconds' warning time.

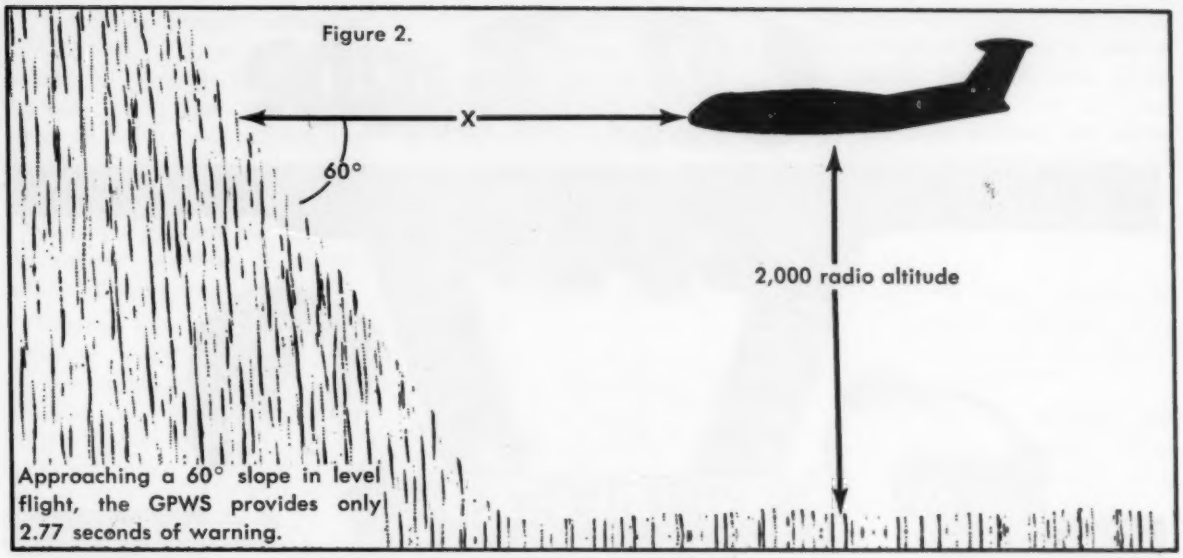


Figure 2.

Approaching a 60° slope in level flight, the GPWS provides only 2.77 seconds of warning.

tains in Washington.

The third mode on the GPWS is one which warns of negative climb rate or altitude loss after takeoff. This mode triggers the warning indicators in the event the aircraft fails to maintain either level flight or a positive rate of climb. This mode deactivates after the plane reaches a preset "safe" absolute altitude.

The fourth mode is designed to alert the crew when the aircraft descends below preset altitudes with either its gear or flaps up. The landing gear warning is preset to signal at a higher altitude than the flap warning. If a no-flaps or partial-flap landing is desired, a flap override may be used to deactivate the flap warning portion of the system. The flap override is the only GPWS "control" available in the cockpit.

The last type of warning, mode five, is "Excessive Downward Deviation from an ILS Glide Slope." This mode applies only to ILS approaches and provides an advisory warning early in the approach when a preset downward deviation on the glide slope indicator is exceeded. At a lower altitude in the approach, the "pull up" warning is sounded if the excessive deviation has not been corrected.

Climb, Climb, Climb

The GPWS is an unobtrusive system. It requires no crew inputs except those required for testing during preflight. There is no disable switch, so if the system senses what it has been programmed to consider a dangerous situation, the alarm will trigger and remain so until the situation no longer exists. The one common corrective action for all warning modes is to climb.

Although the GPWS is not infallible, there is no doubt that a great many air crashes might have been avoided had such a system been in use in the past. As a safety feature, its value will probably be greatest in airport traffic areas. Evidence indicates that the crew of the C-141 that crashed during the approach phase at Torrejon would have received ample warning to avoid the terrain had their aircraft been equipped with a GPWS.

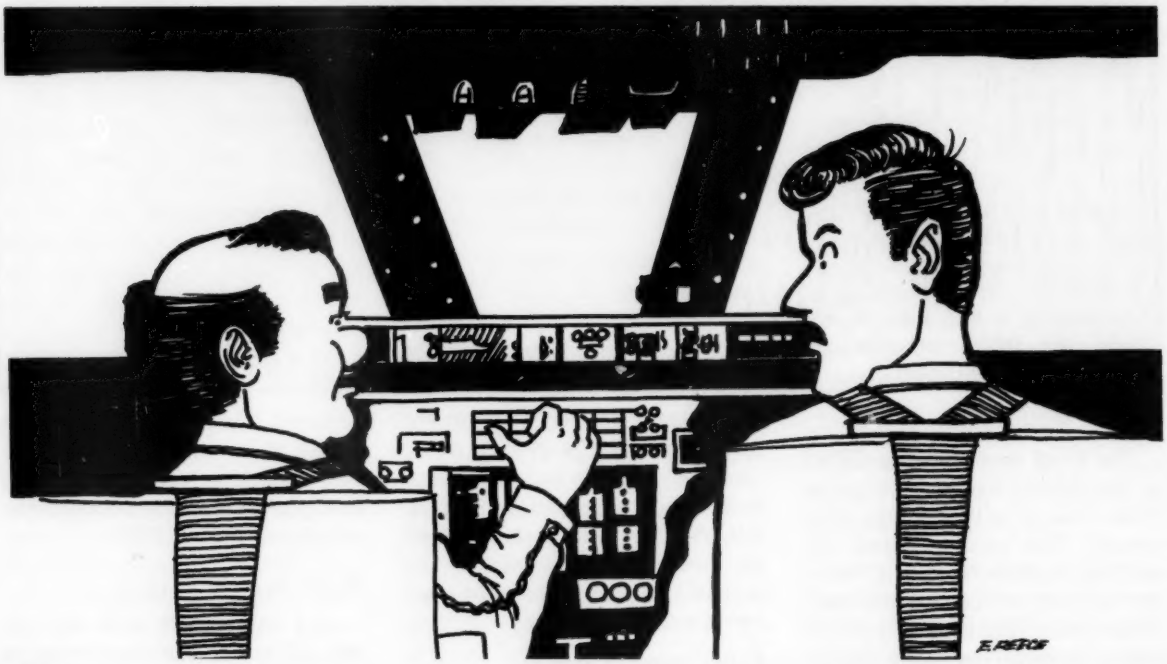
Won't Replace Caution

But the GPWS was not designed to replace awareness in the cockpit and anyone who feels that it was may well repeat some mistakes of the past. It is paradoxical that the crews who make a habit of being aware of their aircraft's position will benefit least from the GPWS. Their awareness is in itself a warning device that the GPWS will never replace. But occasionally human fallibility becomes the dominant flight factor. And the GPWS was designed for just this reason.

So, whether or not the aircraft in your unit are on the GPWS modification schedule, keep in mind that this latest bit of electronic wizardry was never meant to replace any of your functions. Our jobs as aircrew members remain the same as always.

With lights on the ground clearly visible, the Master Manipulator begins a self-styled "en route" descent that results in some unplanned Yuletide decorations.

C.R. TERROR



Tell 'em we're descending, Sammy, boy," the Master Manipulator directed his copilot. "Gotta beat ole Santa to the base before they give him priority in the pattern, hee, hee."

C. R. and his crew were approaching home station after a long trip. This time the Rotund One had dazzled his crew with an amazing display of get-home-itis. They were still recovering from the previous day when their leader had taken off with an inoperative HF radio, tacan, and radar set, and an erroneous heading indicator.

"But, Boss," cautioned Sammy, his nerves all but shattered in the wake of C. R.'s efforts to get them home for Christmas, "don't you think we better stay up here till we get over all the mountains? Radar was notamed out and they can't tell our position."

"Tut, tut, m'little bitty buddy, I can see ahead five-by," grinned C. R. as his pudgy fingers yanked back the throttles. "Just tell approach we'll go down the chute on a straight-in ILS. Gotta get this hog on the ground or we'll be up here till New Year's Eve."

"Ah, Sir," gulped Blinky, the navigator, nervously, "we're still quite a way out and there are some 7,500-foot peaks between here and the base. I don't think we should descend much below ten."

"Ha," chided the Idol of the Airlanes, "if you young troops really want to grow up to be tops in your profession, you gotta learn how to operate without some weenie on the ground giving you instructions all the time."

"But, Sir, we were only cleared to ten," insisted Sammy.

"Tell 'em I got the runway in sight — see, the glow of the airfield is up there at twelve o'clock," insisted C. R. All eyes in the flight compartment squinted in vain for sight of the field.

C. R. jammed another gold-ring Egyptian Oval into his ebony cigarette holder and lit up as Sammy requested clearance for

the ILS approach. Clearance was granted.

"See there, Sammy, nothing to it," assured C. R. as he exhaled clouds of smoke through the cockpit. "Just like the airline jocks do it. No need wasting fuel in our country's hour of energy need."

Sammy squirmed nervously as the aircraft continued its descent into the darkness.

"Metro just reported some buildups west of the field," Sammy advised as the aircraft dropped through 10,000 feet, "but it's so dark I can't tell whether there are clouds up ahead or not."

"I'm painting something ahead at about twenty miles," Blinky cut in, "but I'm more worried about what's under us. Can you guys see the ground yet?"

"It's right where it should be — beneath us," berated the Aviator with Avoirdupois, "about two grand beneath us. We'll level off here for awhile. Relax you guys. Reminds me of my days in Shakey, flying this low. Why — "

"Sir, I'm painting some strong returns just ahead. Probably some bad ice in it, so I'd suggest taking about forty degrees right," Blinky interrupted anxiously.

But C. R. wasn't taking directions.

"I see some lights on the ground," he called, "I'm gonna get under that stuff. No use taking a cross country just to dodge one little cloud."

The big bird renewed its descent and passed through 8,000 feet. A solid mass of clouds now engulfed the aircraft.

"Major Terror," shouted Blinky, "there's high terrain out here at 7,500 feet. You'd better level off quick or we're gonna take up residence in the ponderosa trees."

C. R. jerked back the yoke. The aircraft shuddered, then porpoised wildly through the sky as the Paunchus Pilot overcontrolled in his efforts to level off.

"Must be a mountain wave or sumthin'," cried C. R. "Anybody see the ground yet?"

"Gulp — no, Sir," whispered Sam hoarsely, "we're in the clouds again."

Beads of perspiration began to pop out on C. R.'s forehead as he strained to see outside. Suddenly, he shouted gleefully, "There's the hole I was looking for!" He wracked the plane into a 45-degree left bank toward the break in the clouds.

"Hot damn," he cried, "gonna make that hole this time. Experience, m'lads, experience."

The big jet had descended to 7,000 feet in the turn and headed toward the hole. The skies suddenly opened and the plane broke into the clear.

"Look out," went up a shout from the right seat, "there's a red light at eleven o'clock — high."

"Yeoooow," cried C. R., driving the throttles forward as Sammy pulled back on the yoke with all his might. Their aircraft shuddered and thumped, then shot upward in a right turn.

"That dumbhead almost ran into us," bellowed C. R. as Sammy, now more in control of the aircraft than his boss, leveled at 10,000 feet. "A near miss. Good thing I saw him in time. Call the base and tell 'em some idiot's playing games up here."

Sammy, his face now drained and expressionless, did as he was told.

"Boss," he said, turning to C. R., "approach said they don't know anything about any aircraft out here — except us."

"Preposterous," snorted the Lothario of the Airways. "Why, those dummies. What're they using for radar — TV sets?"

"Sir, remember their radar's out, but I think they're right."

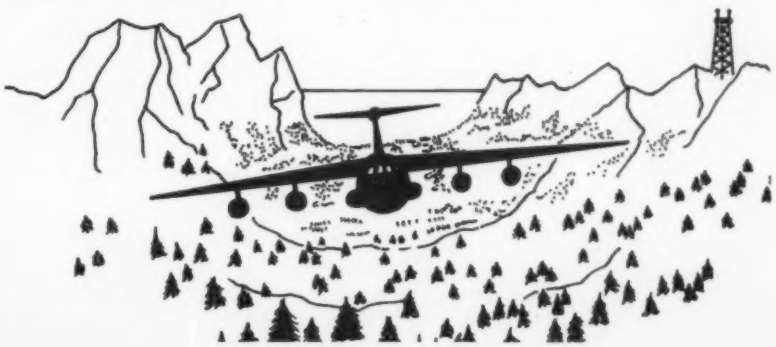
"Whaa — "

"Now that I've calmed down," continued the copilot, "I'm beginning to get my wits back. It didn't look like an airplane we almost hit. It looked more like a tower."

"A tower? Sammy, the excitement has been too much for you. You're starting to imagine things," consoled his boss. "Relax for awhile. I'll take care of everthing."

"Sir," Blinky offered, "there is a tower showing on the chart."

"No way," insisted C. R., "that



C.R. TERROR

could have been a tower. That light is above us."

A short silence.

Finally, Blinky summoned up enough courage to speak.

"Boss, it scares me to tell you this. But according to my calculations, we were actually flying in a valley when we spotted the light on the tower above us. It would've been too bad if we hadn't see it and turned when we did."

"Next thing I know you guys are gonna be saying we really crashed but that the Spirit of Christmas is giving us one more chance," declared the Airway Lothario, miffed with his crew. "What do you think, Sergeant Torque?"

"'He's just coming out of a catatonic state," replied Blinky, able to joke now that their aircraft was back to a safe altitude, "but I don't believe he can speak yet."

"Bah, humbug," growled C. R. "Anyway, there's the field. Get set for my final grease job of 1975."

"Er, Sir," said Sammy as the jet neared the field on short final, "should we put our gear down and run our checklist?"

C. R. shot a quick glance at the landing gear position indicator.

"Why, yes, ah, Sammy," he blustered, "you, ah, just passed the final little test I was giving you to keep you alert."

The Rotund One planted the bird rather firmly on the runway, turned off without mishap and taxied behind a follow-me truck to the parking area.

A collective sigh of relief emerged from the cockpit as the engines were cut. In a few minutes a wide-eyed crew chief stuck his head into the crew compartment.

"Hey, where you guys been, out chopping Christmas trees?"

"What?" replied Sergeant Torque gruffly, having just recovered from his temporary incapacitation.

"You guys must have picked up half the ponderosa trees in the county," said the crew chief, eyeing the crewmen as if they had just returned from another planet.

C. R. bounded out the crew entrance and gazed in amazement at the aircraft, which was now beginning to attract a crowd.

"Wow," sighed Sammy, "we really did it this time. With all those branches in the fuselage, it looks like a cross between a plucked turkey and a scrawny Christmas tree. What are we gonna tell 'em happened?"

The Master Manipulator paused momentarily as the wheels began to turn."About the only thing I can think of is to tell it like it was — that some idiot in a light plane nearly ran us into the ground and only through our valiant efforts and superior airmanship did we escape with minor aircraft damage."

Sammy shook his head in disbelief.

"Is there anything I can do, Sir?" he asked. "I know you'll be out here for awhile once the commander and safety officer get here."

"Not that I can think of Sammy," sighed C. R.

"You sure?"

"Well, maybe there is," replied C. R. with a half-hearted smile. "Stop by Tassle's apartment and tell her I'll be a little late. I just remembered I'm supposed to go downtown and pick up a Christmas tree."

Quick Stoppers

Sniffing for Trouble

A Navy P-3A (Lockheed Electra) flight engineer with a nose for trouble prevented almost certain in-flight destruction of his aircraft. While servicing the aircraft ADI system, the engineer noticed that the antidetonation fluid (distilled water and alcohol) didn't smell or look right. Subsequent analysis of the fluid revealed that aviation 100/130 gasoline was mixed in with the ADI fluid. Samples were taken from other squadron aircraft and ADI service trucks. Varying amounts of petroleum were found in all samples.

Navy investigators discovered that a "new guy" employed by the fuel contractor had been dispatched to the fuel farm storage area to locate and mix a half-empty barrel of methanol with the water in the ADI truck. The FNG located what he assumed to be the barrel of methanol. It had 100/130 printed in large, but faded, numerals on its top; otherwise, it looked pretty much like a barrel of methanol. After mixing the gasoline with the water in the ADI truck, the FNG decided that it "looked all right." The truck then departed for the flight line to service awaiting P-3 aircraft.

Needle, Ball, and Airspeed

That's about all a C-141 crew had left after a key electrical relay failed. Cruising comfortably at flight level 350, the crew spotted indications of impending trouble when the TPLC (Test Programming and Logic Computer) and GYRO 3 annunciator lights illuminated. Minutes later the annunciator panel and cockpit instruments resembled a runaway pinball machine as three gyro warning lights illuminated, accompanied by tumbling attitude indicators and wandering C-12 compass systems. The crew declared an emergency, remained VFR and diverted to a nearby base.

Attempting to isolate the faulty electrical gremlin, a crew member checked the avionics bay beneath the cockpit for signs of a malfunction. The generators were isolated, and associated circuit breakers were opened and closed. But the pilot's instrument panels continued to look like a glittering amusement park. After the plane landed, avionics technicians traced the malfunction to a number two relay in the number one AC essential system. After replacing the relay, everything worked as advertised.

Qs

Flight of Nine?

Just as a B-57 lifted off from a coastal base, eight feathered birds attempted a joinup on the Canberra. Although flying at the proper rendezvous altitude, they were headed in the wrong direction. Two ducked into the left engine and another hooked itself onto the Canberra's pitot tube. Although requiring a strict diet of air and kerosene, the left engine digested its fowl tidbits without a belch and kept humming along. But the airspeed indicator was having difficulty displaying knots with a seagull impaled over the pitot tube. A plea for help brought forth a Navy A-6 which rode shotgun until the stricken Canberra full-stopped at a nearby base.

There seems to be no iron clad method of preventing bird-strikes, but keeping a good look outside the cockpit can help you avoid our feathered friends.

Invisible Trail— Downwind

As an Army twin engine turboprop approached the field, the pilot radioed the tower for landing information. Tower cleared the pilot for approach and landing but cautioned him of possible wake turbulence from a Boeing 707 approximately four minutes ahead.

To keep clear of the 707's turbulent trail, the Army pilot flew his final above that of the 707 and planned to touchdown beyond the 707's touchdown point. But when the Army bird approached the runway threshold, extreme turbulence gripped the light twin, rolling it violently to the right into a 90-degree bank. Clutching their flight controls for dear life, both pilots applied full left aileron and full power. The aircraft responded and rolled through level position to a slight left wing low position. But before they could level the bird a second time, an antenna and left main gear struck the runway. The now surging propellors finally got a grip on more stable air, ending the frightening "touch 'n go."

In spite of the pilot's initial plan to remain above the wake turbulence to touchdown, tailwinds apparently displaced the 707's turbulent trail down the runway smack into his flight path.

Something to watch for behind the heavies.

In the Bag — Almost

With its spoilers and reversers extended, the C-141 steadily slowed down during landing roll. As the bird neared the 3,000-feet-remaining marker, the pilot applied momentary brake pressure. Suddenly, brake pressure gave way — and that wasn't all. The Starlifter veered sharply to the left. The pilot instinctively applied full right rudder and right nose wheel steering but nothing happened, so the copilot flipped on the emergency brake switch. Once again, the pilot depressed the brake pedals and breathed a sigh of relief as the Starlifter slowed to a stop 30 feet from the side of the runway. All the sudden heat in the "kitchen" was caused by a cracked left main landing gear actuator which depleted hydraulic pressure for normal brakes and steering. This incident reaffirms the fact that the "heat's not off" until the chocks are in place and engines have been shut down.

An Attaboy for Maintenance

Following a T-39 functional check flight, maintenance personnel began a home station check (HSC) on the aircraft. During the aileron checks, one of the wrenchbenders heard rasping sounds coming from the left main gear well whenever the aileron controls were moved. Digging into the spaghetti of cables in this gear well, a sharp-eyed inspector found a badly frayed aileron control cable. Four of its six wire strands were frayed completely through while the remaining two showed varying degrees of deterioration.

This discovery prompted an immediate cable inspection of control cables on five other Sabreliners at the base. Frayed cables were found on three of the five aircraft. Thanks to the efforts of a conscientious maintenance team, T-39 jocks at Norton AFB can look forward to a safer flight.

High, Hot, and Off the End

According to some long forgotten aviator extraordinaire, three of the most useless things in the arena of aviation are the airspeed you've lost, the altitude above you, and the runway behind you. Recently, a couple of C-141 pilots had a surplus of airspeed and altitude on final but could have used a little more runway.

The copilot, flying the aircraft from the right seat, completed the dogleg to final and intercepted the final approach course. Four miles from touchdown, the PAR controller observed the aircraft above the glide path where it remained for the duration of the approach. Approaching short final, the controller advised that the aircraft was now "well above" the glide path and should go around if the runway was not in sight.

Taking control of the Starlifter, the aircraft commander landed his speeding aerospace steed nearly 3,000 feet down the rain-slick runway, popped the spoilers and one and four reversers, and got on the brakes. The end was near and coming up fast. Rapidly running out

of concreteus firmus and ideas, the aerospace team departed the runway and came to rest in the grass nearly 300 feet beyond.

All it takes is a steep, diving final, excessive airspeed, and a slick, short runway.

after deadline . . .

REFUELING CAPS -- Autumn leaves and T-39 refueling caps seem to have a lot in common lately. Both are falling from the skies in large numbers. An interim TCTO to improve the lock is being accomplished. Caps that have been modified are distinguishable by one painted alignment mark; unmodified caps have three equally spaced marks. T-39 pilots should pay particular attention to the security of the caps before each flight and, if either type is loose, it should be replaced prior to departure and written up in the 781.

PHOTOS, ANYONE? -- No, we're not trying to give away OUR photos. We're trying to get new ones. Over the years your safety mag has used thousands of aircraft photos, many of which have become torn, tattered, or obsolete. To keep up with the times, we need new ones. So, we're requesting you readers, and flying safety and information officers in particular, to dig into your files and send us any aircraft photos that you feel are suitable for publication. We can't return them, but if they're published, we'll give you a credit line for personal photos. Mail to: THE MAC FLYER, MAC/IGFE, Scott AFB IL 62225.

COMING UP NEXT MONTH --

* C. R. Terror's unique crew offers resolutions to make their flying more safe in 1976.

* What does a helicopter pilot have in common with the pilot of a crop duster? You'll find out in "The Downed Crop Duster with the 2,000-Pound Bomb," an Honorable Mention in the 1975 Flying Safety Writing Contest.

* False instrument indications and poor visual clues play a part in the crashes of two airliners. Actual accounts of these crashes appear in "Mishaps with a Moral."

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